Resource Action: EWG-45 **Task Force Recommendation Category: 2**

Create Trophy Salmonid Stocking Program in Thermalito Afterbay

Date of Field Evaluation: No field evaluation was conducted

Evaluation Team: Phil Unger and David Sun

Related Resource Actions:
There are several other Resource Actions that are either similar to or otherwise related to this measure:

- EWG-47, that proposes to create trout stocking program in suitable Oroville Wildlife Area ponds.
- EWG-48, that would create trophy angling areas in selected Oroville Wildlife Area ponds by stocking warm water species (e.g., Florida strain bass).
- EWG-50, that proposes to continue the management protocols for the coldwater fishery in Lake Oroville.
- EWG-78A, that would develop maintenance and recreational management actions to avoid impact to special status species within the project area.
- EWG-87, that proposes to operate or modify the Oroville Complex in a manner that would provide suitable warm water for agricultural and recreational purposes, while providing adequate coldwater releases at the Thermalito Afterbay Outlet.

Description of Potential Resource Action Measure:
This measure would create a steelhead stocking program in Thermalito Afterbay, similar to the trophy salmonid program in Lake Oroville. The intention is to use a native Feather River strain of steelhead that would be resistant to local fish diseases. The stocking program would enhance the sport fishery, which would potentially increase recreational opportunities in the Afterbay.

Nexus to the Project:
The Oroville Project operations control the flow of water from Lake Oroville to the lower Feather River through diversions through and around Project facilities, including the Thermalito Complex (Forebay and Afterbay). As part of the Project operations, DWR and the California Department of Fish and Game (DFG) currently maintain a cold water fishery in Lake Oroville. This Resource Action would be designed to expand that managed fishery program to include a cold water fishery (i.e., stocking salmonids) in the Thermalito Afterbay. The construction of the Project has created a number of new recreational opportunities, and this resource action would provide additional trophy angling opportunities that would otherwise not exist.

Potential Environmental Benefits:
A properly managed stocking program would potentially reduce angling pressure on native fish stocks within the project area and thereby improve native fish production.

The proposed stocking program intends to use a Feather River strain of steelhead to minimize disease concerns. It is expected a native strain of steelhead would have higher resistance to local diseases than an exotic strain. This assumption would need to be confirmed with staff at the Feather River Fish Hatchery.

Potential Constraints:
Water temperatures in the Thermalito Afterbay are a major potential constraint on establishing a steelhead stocking program because it is unknown how long steelhead would survive in the warm summer temperatures that prevail in most of the Afterbay. It is likely, however, that temperatures in the central deep channel of the Afterbay would be suitable for the steelhead. Additional potential constraints may arise from fish diseases, as well as impacts on native fishes. It may be difficult to find a suitable fish stock that is not only a desirable sport fish, but is also resistant to significant fish diseases, such as salmonid ceratomyxosis (*Ceratomyxa shasta*) and infectious haematopoietic necrosis (IHN). In addition, stocked fish escaping into the lower river through Thermalito Afterbay Outlet could have impacts on sensitive native species in the Feather River, due to competition and/or predation.

Existing Conditions in the Proposed Resource Action Implementation Area:
The Thermalito Afterbay is located downstream of the Thermalito Forebay, which is located downstream of the Thermalito Diversion Pool and Oroville Reservoir. Water from the Afterbay is released through the Thermalito Afterbay Outlet into the Feather River downstream of the Low Flow Channel. Some Afterbay water is also diverted into irrigation canals. The Afterbay provides storage for the pump-back operation to Lake Oroville. The facility also provides recreational opportunities and provides agricultural water for several local irrigation districts. The water surface area of the facility at maximum operating storage is approximately 4,300 acres.

The Thermalito Afterbay has a diverse water temperature regime. During the warmer times of year, water temperature released from the Afterbay to the Feather River is warmer than that already in the river because the water diverted through the Thermalito Complex has a much longer residence time, including time in shallow reservoirs, than the water in the Low Flow Channel. Water temperature in the Afterbay is constrained during summer and fall by low water temperature objectives for fish in the Feather River downstream of the Afterbay outlet, and during spring by elevated water temperature objectives for rice farmers. The combination of cold inflowing water and large areas of shallow water results in a wide range of water temperatures within the Thermalito Afterbay, thus providing suitable habitat for both warmwater and coldwater fish species. Limited fish sampling at the facility has found mostly warmwater fish species, but some cold water species (i.e., rainbow trout and brown trout) have also been found. Currently, a popular largemouth bass fishery exists in the Thermalito Afterbay and there

is no salmonid stocking program. However, coldwater species are stocked into the Thermalito Forebay, and it is likely that fish from the Thermalito Forebay pass through the Thermalito Pumping Generating Plant into the Afterbay.

The two most significant diseases in the project waters are ceratomyxosis and IHN, which both only affect salmonids. These diseases have been reported from the Thermalito Annex Fish Facility. However, the higher water temperature in the facility is believed to slow the spread of IHN since the disease is more problematic at lower water temperatures.

Design Considerations and Evaluation:
All stocked fish would need to be screened and properly managed for fish diseases prior to fish planting. Such actions would minimize the risk of transmitting diseases to resident fish in the Thermalito Afterbay and potentially into the Feather River.

Synergisms and Conflicts:
This resource action is compatible with other measures that relate to stocking programs and therefore should be managed in coordination with those other programs.

Implementing this action would potentially lead to water temperature conflicts with the warmwater sport fishery and with rice farmers. Fisheries managers often have a double role in that they have to enhance sport fishery species at the same time as having to protect the environment, including native fishes that may be adversely affected by competition and predation from the game fish species. This situation can lead to conflicts of interest.

Uncertainties:
A major uncertainty is the potential impacts of a steelhead stocking program on resident fish in the Afterbay and TES and other species in the Feather River. For instance, steelhead predation on juvenile salmon has been identified as a potential issue with regard to production of wild spring and fall-run Chinook salmon in the Feather River (EWG-42).

Cost Estimate:
The stocking goals need to be established before the cost can be estimated. Once these goals have been determined, the cost for this measure could be estimated from existing hatchery stocking programs and could ultimately be integrated into the existing programs.

Recommendations:
This resource action would require proper management to avoid any impact to the existing fisheries. All stocked fish would need to be screened for fish diseases to prevent disease transmission to fishes in the Thermalito Afterbay and, potentially, the Feather River.

If possible, measures should be included with this action to prevent/reduce downstream passage of planted fish from the Thermalito Afterbay into the Feather River.